

Do It Yourself: 4D Printing and Trade



Integration Ideas

INN-TEGRATION WITH DOUBLE N AS INNOVATION

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This year, the [annual flagship event](#) of the Institute for the Integration of Latin America and the Caribbean (INTAL) looked at the impact of new technologies on the transformation of the production patterns of Latin American and Caribbean countries, with the help of global experts who shared the latest developments in these areas.

Just over two centuries ago, three innovations changed the world forever: the steam engine, electricity, and the telegraph. Together they gave rise to the Industrial Revolution. Today, the very sectors in which these innovations came about—transportation, energy, and communications, respectively—are going through similar exponential changes and creating a new form of industry, Industry 4.0.

Exponential technologies that were often invented by creative garage entrepreneurs have started to impact the world of economics in highly varied areas, such as [trade, information and communication technologies](#), [digital manufacturing](#), [the bioeconomy](#), the use of [big data](#), or [nanotechnology](#).

For example, advances in artificial intelligence imply one of the most dizzying challenges of our time: robots have started to compete for our jobs. We are learning to manufacture automated, independent minds that will be capable of doing our work and replacing us.

The [International Federation of Robotics](#) estimates that by 2018 there will be over 1.3 million industrial robots operating in factories around the world. In some countries, up to 85% of manufacturing jobs may be [replaced \(link in Spanish\)](#) by machines.

The potential impact these technologies may have on labor markets and income distribution could be highly significant. Many jobs, especially those requiring lower skills and paying lower salaries, may disappear as a result of automation (Frey and Osborne, 2014; WEF, 2015).

Productivity is on the rise, but so is unemployment, partly because of technological progress [1]. The speed at which technology is developing and moving forward, creating new realities of life (and new problems), isn't giving us time to come up with appropriate solutions fast enough.

How long will it take for autonomous cars and trucks to become widespread? Or for 4D printing to put paid to the high costs of logistics, transportation, and warehousing through the rise of DIY philosophy and maker mentality? When will renewable energies replace oil?

The spread of autonomous vehicles will entail major modifications to legislation on vehicle safety standards and the protection of privacy, among other factors (Van Woensel and Archer, 2015). If such changes are not coordinated at the international level, legislative differences could become technical barriers to trade (TBTs).

The Sharing Economy

Another example is the sharing economy, which venture capital expert and enthusiastic start-up investor Shervin Pishevar predicts **may become as significant as the Internet**. Companies in the tourism sector (Airbnb, CouchSurfing, or Homeaway), transportation (Uber, Lyft, or Bla Bla Car), the entertainment industry (Netflix, Amazon Library, or Spotify), or online marketplaces (Wallapop or eBay) have created large new markets in a short time solely on the basis of connectivity.

According to the report "*Economía colaborativa en América Latina* [The sharing economy in Latin America]"[3], the number of sharing economy initiatives in the region are concentrated in a handful of countries, led by Brazil (32%), followed by Argentina (13%), Mexico (13%), and Peru (11%).

There is no doubt that the sharing economy is transforming the service sector and will also affect employment. The key will lie in developing tools that allow us to harness new technologies, take advantage of the employment potential that is emerging in these new sectors, provide legal protection for different forms of employment, and foster harmonious, balanced relationships between different social players [4].

The new industrial revolution is blurring the boundary between goods and services and bringing about a true metamorphosis in the shape of global trade, with increasingly complex and sophisticated global value chains.

Where and when?

October 5, 2016 / Buenos Aires, Argentina.

[Find out more and download the program](#)

References

[1] Nicolini, Cecilia. 2016. "ROBOTlution: The Empowerment of Machines." *INTAL Connection* no. 239.

[2] "The Great Decoupling: An Interview with Erik Brynjolfsson and Andrew McAfee"

[3] *Economía colaborativa en América Latina*. IE Business School; FOMIN, 2016.

[4] Fabio Bertranou in: *Economía colaborativa en América Latina*. IE Business School; FOMIN, 2016.

Additive Manufacturing: A New Revolution

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A new upstart is vying for the throne in the kingdom of upcoming technological revolutions: digital manufacturing. Digital manufacturing technologies, especially 3D printing, allow objects to be digitized in three dimensions and then manufactured. Tools for digital design and manufacturing are becoming ever more available, such as 3D printers, laser cutting machines, and computer numeric controlled (CNC) lathes and milling machines, which are simultaneously powerful, versatile, and interconnected. These tools have user-friendly interfaces, *intuitive software*, *online tutorials*, allow files to be exchanged over the internet, and even use open source programming. All this facilitates the on-the-job learning process and allows an object designed, for example, in Argentina to be manufactured in Brazil, Colombia, or anywhere else on Earth.

At the same time, digital manufacturing technologies shorten the time lag between design and production and help speed up flexible production mechanisms for small batches of products. Digital manufacturing thus accentuates the role of the service economy and the growing importance of design and programming capacities while subverting traditional forms of manufacturing.

Digital manufacturing tools are bringing about an explosion of applications and uses. Today, you can make almost anything using them. The current uses for digital manufacturing include jewelry, apparel, furniture, machinery, foods, and prosthetics. Many of these applications are copies of or improvements on existing processes, but there are also more experimental applications such as housing construction, human tissue production, 4D printing, and the manufacturing of spare parts at the International Space Station (which produced the first objects manufactured outside the Earth).

Depending on the materials they use and the precision of the machinery in question, these printers can cost between US\$400 for household printers and US\$500,000 or more for industrial set-ups (Deloitte, 2013). Shrinking machinery costs mean this technology is becoming more and more widespread. While in 2014 it was estimated that approximately 108,000 such printers were sold globally, a year later sales had doubled, reaching 217,000 units (Gartner, 2014). At the same time, the total digital manufacturing market (including machinery, *software*, and services)

has also been growing dramatically: it is expected to climb from an estimated US\$2.5 billion in 2013 to US\$16.2 billion in 2018 (Earls and Baya, 2014).

Given the variety of fields where this technology can be used, the speed of technological innovation, and the enormous potential of the market, digital manufacturing is becoming *the* breakthrough technology of our time, and some have already started comparing its potential with that of information and communication technologies in general, and the Internet in particular, 20 years ago (Murphy, 2015). Major companies, researchers, politicians, entrepreneurs, architects, designers, *makers*, and the media have all been drawn in by the potential digital manufacturing seems to hold.

But can digital manufacturing technology really live up to its promises of technological revolution?

According to Pérez (2005), technological revolutions are sets of technologies, products, and forms of production that promote new waves of long-term techno-economic development and bring about profound changes in social structures. In this sense, a technological revolution would imply paradigms shifts in the structure of organizations, forms of handling knowledge, logistics and transportation, energy and inputs, forms of employment, etc.

This is the definition that we use in this article, with some reservations, to examine the promises and challenges of digital manufacturing, highlighting the different development paths and innovation alternatives it implies. To this end, we begin by briefly analyzing the background and potential of digital manufacturing, present two outlooks for the region, and finally put forward some ideas for the construction of new spaces for innovation.

Two Instances of Digital Manufacturing

Many of the technological tools that are part and parcel of digital manufacturing are not particularly new. For example, the development of CNC machinery can be traced back to the 1950s, at least. Computer-assisted design and manufacturing first began to be used industrially in the 1970s and 1980s, while the development of the first 3D printing technologies dates back to the 1980s (Robben, 2013).

When Design Is Nearly Everything

Digital manufacturing is efficient even on a small scale and could constitute a major opportunity for Latin America.

Digital manufacturing is different from traditional manufacturing not only because it is additive, but because it implies interesting changes in the processes of production, trade, and

consumption. The disruptive nature of this technology derives from the digitization of goods that used to be physical (Vazhnov, 2014): product design is now more important than the products themselves, and the exchange of digital files is playing an increasingly significant role. 3D printing is changing the relationship between efficiency and the numbers of goods produced. In industries with high fixed costs, efficiency is linked to economies of scale: costs come down as total production increases and standardized products are mass produced. In contrast, digital manufacturing can produce goods efficiently on a small scale. This reduces barriers to entry in certain industries, allowing innovative small and medium-sized firms to get a foot in the door. It also favors the development of prototype-based products by cutting out the need for large investments in new production lines.

At present, distribution channels (how the good reaches the consumer), supply chains, and inventory management are fundamental to companies' commercial strategies. 3D printing cuts delivery times and enables customized, produced-to-measure manufacturing of very different goods using the same hardware. In combination with 3D scanning, this technology enables existing goods to be repaired or improved. Consumers with access to this sort of technology can become producers or "prosumers," which is part of a trend toward democratization (Anderson, 2012).

Among those with positive takes on this process, Birtchnell and Hoyle (2014) argue that 3D printing has enormous potential for taking on social problems, combating poverty, and bolstering crisis-stricken economies. The authors argue that it offers developing economies the opportunity to be more self-sufficient and less vulnerable to the shocks of the global economy. They also claim that low-cost 3D printers can contribute to inclusion by creating local innovation opportunities for entrepreneurs.

Given this, would digital manufacturing lead to radical change in production methods and thus to a new industrial revolution (The Economist, 2012)? Despite how difficult it is to make predictions about it, this technology would seem to have great prospects and may ultimately complement current production methods through hybrid processes involving both (WTO, 2013).

The spread and scope of digital manufacturing will depend on how fast the costs of 3D printers and the software and inputs for them come down. Although the software in question is often free and open source, today, the inputs for 3D printing are between ten and one hundred times more expensive than the inputs used in traditional production processes (Vazhnov, 2014). It is also important to pause for thought on some of the implications 3D printing may have on global trade patterns.

- It could benefit the international trade in design and digital goods to the detriment of trade in physical goods, which would become less significant within the international transportation and logistics system for merchandise, thus reducing costs and waiting times at customs.
- The increased demand for new materials would be an enormous opportunity for those countries able to supply them.
- The fact that 3D printers would be located near or actually within consumers' homes and would be less employment-intensive could erode the foundations of countries' specializations in manufacturing. This is especially true in cases based on low salaries, such as China and other Asian countries or Mexico and Central America. In contrast, it would strengthen the internationalization of small business and start-ups that focus on product design. One example of this is the toy industry, where 3D printing has enormous potential through cocreation, customization, and the use of a simple material like plastic.
- It poses a range of challenges for the multilateral trading system, from the difficulty in obtaining data (it is easier to track goods that cross borders than the trade in services) and assigning property rights to how to ensure product quality through certain technical or sanitary standards, etc. This is particularly relevant for health-related products (such as prosthetics or organs, etc.).

Suominen (2014a and 2014b) argues that the greatest risk in this sense is that the rules of international trade and trade policy have little to say about these innovations and seem not to have caught up with them. Similarly, Casanueva (2015) claims that 3D printing poses a challenge to the multilateral trade system and free trade, investment, and industrial property agreements in terms of their capacity to look ahead and anticipate new developments. Other aspects that the author says are involved in 3D printing range from establishing taxation on the provision of programs and design to protecting intellectual and industrial property rights in connection with invention, patents, and the design of digital files. In other words, 3D printing is rekindling the debate on intellectual property and patents that began at the start of the internet era.

3D Printing in Three Areas. The Situation in Latin America.

The leading countries in the 3D printing industry are the United States, Japan, Germany, China, the United Kingdom, Italy, France, and the Republic of Korea. However, Latin America is also making headway in this area (UNIDO, 2015). Although the list below is not representative or exhaustive, it highlights some experiences in countries in the region:

- Robtec is a leading firm in the 3D printing industry in Latin America and provides services to large automobile and aviation companies. It was recently acquired by 3D Systems, creating 3D Systems Latin America, with the aim of developing a strategic platform to fast-track the adoption of this technology in the region.
- Trimaker and KikaiLabs are among the pioneering companies producing 3D printers. The National Institute of Industrial Technology (INTI) has created a map of players in the field of 3D printing.
- ThinkerThing is a project that revolves around children designing their own toys.
- Engineering students at the Konrad Lorenz University design and test objects and products. These experiences with 3D printing demonstrate that it has the potential to generate innovative, customized solutions at the global level and within the region.

Without taking an overly optimistic view, this is an opportunity for Latin American countries to improve their integration into global value chains through product design. The region could leverage the experiences of private companies and public policies and continue promoting the development of this technology and its adoption by entrepreneurs and relatively small companies while taking into account regulatory aspects so as to minimize possible risks and negative effects.

SEE THE COMPLETE ARTICLE IN THE INTEGRATION & TRADE JOURNAL, NO. 39.
DOWNLOAD FROM <http://intal-sqi-01/icom/notas/39-18/> (link in Spanish)

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Cars that park by themselves, heating systems that you can turn on before you get home, refrigerators that keep track of the expiration date of the foods inside them, and sneakers with GPS. These are just a handful examples of the Internet of Things (IoT). But what exactly is it?

The Internet of Things was born at the Massachusetts Institute of Technology (MIT) and has started a revolution in the relationships between people and objects and even in the relationships between objects themselves, which can now connect to one another and to the internet to provide and share data in real time. This process is leading to the digitization of the physical world.

This fascinating, highly topical issue that may have a significant impact on regional integration and trade. To discuss it further, the Institute for the Integration of Latin America and the Caribbean (INTAL) at the Inter-American Development Bank's (IDB) Integration and Trade Sector (INT) organized a conference that took place on September 8, 2016, at the INTAL-Lab. At the event, **Andrei Vazhnov**, academic director at the Baikal Institute, presented his book *La Red de todo: Internet de las Cosas y el Futuro de la Economía Conectada [The Internet of Things and the future of the online economy]*.

Mr. Vazhnov believes it makes more sense to think about IoT as a metaphor in which objects become intelligent, learn to perceive the world around them, and become capable of communicating with one another. Smart, online products are changing the nature of objects themselves, while the new things that these objects can do and the data they generate are defining factors in this new era.

The source of this flow of disruptive changes is the falling price of electronic components, which has enabled smart behavior and wireless connections to the Internet of Things to be incorporated into all manner of things: cars, telephones, watches, drones, etc. When sensors, a computer, and a Wi-Fi connection are added to a new object, it is no longer just a product. Instead, it becomes a new point of connection between the physical world and the digital world.

The convergence between these two worlds is bringing us better-connected products, more reliable machinery, and a much more efficient way of using the earth's resources by potentially endowing each machine, each car, each wristwatch, and each household appliance with smart skills. Over the next few years, sectors such as logistics, transportation, agriculture, and manufacturing will start to transform their industrial base by adding smart, online behavior to all

their systems and production processes. This will open up a wide range of challenges and opportunities for business owners and entrepreneurs.

However, the use of IoT within the industrial sector will change not only the way that products are made, maintained, and sold, but will also affect the very nature of industry itself. The need for smart, online behavior to be included in all machinery and production processes will generate new competitive dynamics and oblige industrial companies to develop new knowledge in areas such as software and big data.



What Exactly Are We Talking About When We Talk About Smart Devices?

The idea of smart devices implies the capacity that these have to run programs that can analyze the data from their senses and act on them according to certain rules established by their programmers. Basically, in line with the key design principle for smart technology, computers won't need to ask humans things that they can find out for themselves.

According to Andrei Vazhnov, there are three aspects to each device's "intelligence": sensors, processing, and connectivity. Just as important is the "cloud" the product is associated with, as while some applications function directly within each device, others operate via remote storage.

The key function of the cloud is to enable new features that exist outside of a physical device. When these devices are connected, any type of potentially useful interaction can be automatically coordinated.

Preventive Maintenance

Another core aspect that Mr. Vazhnov stressed in relation to industrial IoT is that we are at the start of a process of transformation in the way we maintain the infrastructures that give our lives structure. Maintenance is shifting from being after-the-fact to preventive. What does this shift mean? In this new context, a machine could automatically contact its manufacturer to order a spare part. Its monitoring system would request the right technician come to repair it, and the technician would turn up at the factory or company with the necessary part in hand. As a consequence, the evolution of technology will enable machinery parts to be replaced before they even break and for technicians to know exactly what needs to be done before they arrive, thus preventing downtime caused by technical issues.

Interconnected Medicine: From Treatment to Prevention

Mr. Vazhnov also explained how just as the industry business model is transforming towards preventive maintenance, the health system is moving from a treatment-based approach to one that revolves around prevention.

The use of electronic devices that monitor people's vital signs, their blood sugar levels, and many other aspects of human health means that we can diagnose and predict illnesses, reduce stress levels, improve the quality of our sleep, and improve our performance at sports, among other things.

These technologies are making the greatest waves in managing chronic illnesses. However, Mr. Vazhnov also stressed that this implies a regulatory challenge due to safety- and privacy-related factors associated with the handling of sensitive information.

Similarly, the application of IoT to the health system would help expand access to high-quality medicine, which is one of today's major challenges, especially for developing countries. Mr. Vazhnov maintained that if we can detect almost any health problem as soon as it appears, or even earlier, and if patients can make direct contact with the right doctor anywhere in the world just by Googling them, then the incentives and strategies of the big players in the world of medicine will start to change.

Today, more and more clinics and hospitals around the world rely on systems that allow healthcare staff to actively monitor people as outpatients, noninvasively.

The Online Economy

Mr. Vazhnov appealed to this idea to underline the liquid nature of digital products: in other words, if a digital product is available somewhere in the world, finding it, buying it, and starting to use it is only a matter of clicks. Supply and demand no longer converge at a physical store, but rather through an algorithm.

He gave Uber and Airbnb as examples of this, arguing that the reason these apps are so disruptive is that they're starting to bring that same liquid nature to a physical activity, even to the world of work, which is turning an entire industry on its head. In a way, what these platforms do is to remove the boundaries of space and time between supply and demand.

Mr. Vazhnov underlined that many of the machines, tools, and resources that make up our economies have high levels of downtime, simply because before the advent of IoT, there was no efficient way of connecting the demand for certain resources with their availability. The IoT implies making more and better use of what we already have, creating value in the process.

Download a New Car

We are used to the idea of getting a new car if we want a new feature; however, since Tesla's irruption onto the car manufacturing scene, the physical car has gone from being a product in and of itself to being a form of online hardware which contains more and more software parts. As a result, a car's new functions are becoming more and more like the apps that we download from stores like iTunes or Google Play. Tesla can send an update with the latest version of its self-driving car through the internet.

If a Tesla car has a problem, its sensors will report it for it to be analyzed and, once it has been repaired, an update will be sent to fix the problem in all other cars. In a traditional car, each problem has to be repaired in each car individually.

Mr. Vazhnov underlined that not only is the digitization of large car parts making Tesla's development cycle faster, it also means that users have a much safer vehicle that is continually "learning" from the collective experience of all other Tesla cars on the road.

In the long term, smart, online vehicles are expected to cooperate automatically with one another, with traffic lights and other aspects of road infrastructure, which will prevent traffic accidents, thus saving hundreds of thousands of lives and preventing the injuries caused by accidents.

Environment

The use of IoT to combat pollution will have three different impacts: improving health and quality of life, preserving a resource that is incredibly scarce and hard to renew (a clean environment), and providing companies with an incentive for creating low- or no-waste industrial processes, which encourages the efficient use of raw materials and creates economic growth through the creation of new technologies.

Smart Processes

The IoT will help to improve multiple public services as a result of the increased flows of information that it generates. As a general principle of the efficiency revolution, IoT-based products could be sent to enable the free flow of information, which enables us to coordinate any process in any area better.

The example Mr. Vazhnov used came from the transportation sector. He said that it is estimated that people spend over half their total journey time on public transportation waiting at bus stops or train stations. As they don't know exactly what time their bus or train will arrive or how long the journey will take, they need to be at the stop or station in plenty of time to make sure they aren't late for work or wherever they're headed. To compound this, some forms of public transportation carry very few people while others are so packed that it's almost impossible to get on. Why is this? A large part of the answer is a lack of information. If people could use their cell phones to find out exactly what time their transportation would be arriving and how long it would take them to get to their destination given the traffic conditions at that exact moment, they could win back much of the time they currently spend waiting. Likewise, if companies had up-to-date information on how many passengers were waiting at each stop and how many would be taking each bus or train, they would be able to manage the numbers, routes, and shift times for their drivers throughout the day dynamically in response to this demand. Not only would this provide a better service for the population, it would also save companies money by optimizing the use of their resources.

This logic is equally applicable to all the processes around us. Garbage trucks wouldn't have to waste fuel roaming the streets one by one if they knew in advance which trash cans were full. Using this information, drivers could follow an optimized route on each trip.

Challenges

The IoT is one of the breakthrough technologies with the greatest potential for creating wealth. We need to take advantage of objects becoming intelligent and communicating with each other

to improve people's lives. However, we also need to be aware of the risks it entails so that we can measure its potential impact. These risks include the autonomy that online objects would be given and the issue of information security. Public policy debates around these issues must focus on making decisions that benefit society as a whole.

Freight Logistics as a Pillar of Integration

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A given country's competitiveness is directly impacted by how well logistics performs. This factor integrates national and international markets and allows countries to exploit their local comparative advantages and economies of scale. On the basis of this premise, COSIPLAN has taken on a comprehensive vision of transportation and the services associated with it, which logistics are the linchpin for.

The [Executive Technical Group Meeting on Freight Transportation and Logistics \(link in Spanish\)](#) took place on September 13 and 14, 2016, in Bogotá, Colombia. The event was coordinated by [INTAL](#) in its role as the [COSIPLAN/IIRSA](#) Technical Coordination Committee and was attended by delegations from many countries in South America, including government officials who had taken part in the online course on Drafting and Management of Policies on Freight Transportation and Logistics.^[1]



The meeting focused on five areas: the Network of Government Experts; Observatories on Freight Transportation and Logistics in the region; the Drafting of the Strategic Plan for Freight Logistics for the MERCOSUR–Chile Hub; COSIPLAN Sectoral Integration Processes connected with this area, namely border integration and facilitation, rail integration, and integration through ports and waterways; and the online course. The two days combined information-packed presentations with working groups on strategic planning.

A Network of Government Experts to Design Public Policies

The crosscutting nature of the logistics sector means that policy design for it needs to take a multisectoral and multidisciplinary approach. The organizations that take part in COSIPLAN include government bodies related to transportation, infrastructure, and planning, and other players from the areas of trade, production, and customs at both the national and subnational levels. The involvement of the private sector as a logistics provider and source of freight has also become essential.

The objective of COSIPLAN's Network of Freight Logistics Experts (REXLOG) is to continually advise the council on its decisions and the making of public policies, plans, projects, and regional initiatives so as to promote the development of national and regional logistics systems. At the meeting, the countries agreed that the structure and operations of the network would use a flexible work scheme so as to allow all countries to be actively involved. The aim of this approach is to expand the range of institutions that are involved, facilitate the exchanging of experience and best practices, and create a suitable environment for promoting shared solutions.

The technological tool that will be used to provide support for this dialogue and exchange of information among participants is the [IDB's Communities of Practice on Integration and Trade \(link in Spanish\)](#). It was also decided that the entire network would meet in person to review their progress and put forward new issues.

The network will operate on the basis of working subgroups that focus on specific topics. Work will begin in the first quarter of 2017. The meeting established the following three areas as priorities: strategic logistics chains; information-gathering and observation methodologies; and the harmonization and unification of core concepts. Other issues that were identified included: institutional structure and freight transportation regulations; the urban impact of logistics; information technologies; trade facilitation; and the infrastructure of logistics services.

Those present acknowledged the shortcomings in the available information on freight transportation and logistics in the region and identified key regional indicators on which data

needs to be collected. For the short term, these indicators were: (i) freight volumes (tons/month; tons/km) by type; (ii) times: origin–destination and time at the border; (iii) transportation (fleet): number of vehicles by type that operate along integration corridors; (iv) foreign trade processes: number of checks required for a single shipment and the number of documents required (import and export); (v) costs (tons/km); and (vi) distribution/exchange by form of transportation.

A Training Program for Public Officials

The [Online Course on the Drafting and Management of Policies on Freight Transportation and Logistics](#) was developed by the IDB and coordinated by Peru as part of the COSIPLAN initiative. INTAL coordinated the drafting of the project proposal and contents, carried out the technical review of the program, and convened participants. The aim of the program was to train officials from the various public-sector agencies from UNASUR countries that are involved in the drafting, implementation, and evaluation of public policies, plans, programs, and projects in the freight logistics sector.

Between 2015 and 2016, the course was run three times. Of the 120 people who signed up, 97 government officials from 14 countries in Latin America completed it. Participants came from the following South American countries: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, and Uruguay. Of these, 60% were men and 40% were women, and the average age of participants was 40. They gave the course a rating of 9 out of 10 on the basis of its contents, tutors, the materials used, and the online platform.

Outcomes of the Online Course



During the meeting, those participants who had completed the online course rated it very highly, underlining the quality and usefulness of the contents and the experience they had gained as a consequence of the number of hours it had involved. Among other factors, they mentioned how useful the forums had been as a way of learning from each other’s experience; the need for a

real-time tool to allow participants to get to know each other; and the importance of publicizing the course within their governments so that institutions that work with freight logistics at both the national and subnational levels will get involved.

The countries present requested that a fourth session of the course be run in 2017 as part of the COSIPLAN Work Plan. To this end, they committed to identifying a wide audience that would include public agencies that work in this area at both the national and subnational levels.

Strategic Logistics Chains in the MERCOSUR–Chile Hub

As part of the 2016 Work Plan, the countries of the MERCOSUR–Chile Hub suggested carrying out a study on strategic logistics chains within the hub. INTAL coordinated the drafting of the initial proposal for the terms of reference for the initiative, so as to define its scope and the resources needed to carry it out. The objective of the study is to draft a strategic plan to develop freight logistics in the MERCOSUR–Chile Hub, focusing on chains that are of strategic interest (both at the national level and within the hub) and on understanding patterns in trade and logistics.

The Geographic Scope of the Study



The proposal they put forward was analyzed by the working groups. The main conclusion reached was that in order to carry out a study of this size, all countries would need to commit to providing the necessary resources and set up multisectoral national teams to carry out the work plan. Those present also underlined the need to involve subnational government; establish public–public and public–private mechanisms for dialogue at both the national and regional

levels; and to agree on a set of quantitative and qualitative criteria for selecting specific logistics chains, bearing in mind that the links that make up these chains need to belong to more than one country.

This feedback will be incorporated into a new draft of the terms of reference that will be presented via videoconference to the country coordinators for the hub so that they can consider including them in the 2017 COSIPLAN Work Plan.

Sectoral Integration Processes Associated with Freight Logistics

In order to analyze the coordination of freight transportation and logistics initiatives, the event included presentations on the progress that had been made on South American Rail Integration, Cross-Border Integration and Facilitation, and South American Integration through Ports and Waterways.



In terms of South American Rail Integration, COSIPLAN is currently carrying carrying out its “Study to Provide Inputs for Drafting a Strategy to Facilitate South American Rail Integration,” which is being coordinated by Uruguay. Those presenting this study underlined the information-gathering efforts that countries are making and mentioned the importance of making this information available so that other analyses can be carried out in addition to those included in the study.

The discussion on Cross-Border Integration and Facilitation reviewed the prior work in this area that COSIPLAN had carried out and the related initiatives that Argentina and Chile coordinated in 2016. Up-to-date information on the state of border crossings and borders was gathered

through questionnaires sent to all 12 countries. These efforts are directly connected to freight transportation and logistics. The aim of this was to obtain information on issues such as services for truck drivers; parking areas for freight vehicles; separate entrances to checkpoints; logistics nodes at border areas; refrigerated cargo checks; and dangerous cargo checks. Those present also underlined the usefulness of the [COSIPLAN Geographic Information System \(link in Spanish\)](#), which allows logistics and freight transportation to be articulated with information on borders, as it includes thematic layers that georeference dry ports, free trade zones, and logistics hubs, among other features.

With regard to South American Integration through Ports and Waterways, CAF mentioned that its recent [study \(link in Spanish\)](#) had revealed the potential of this initiative. South America possesses the largest river system in the world, containing 28% of the planet's total freshwater and made up of 110,000 km of navigable waterways. CAF also underlined the need for a paradigm shift regarding waterways and river basins, which it argued should be perceived as means of transportation and communication that integrate inhabitants and territories. It went on to explain that they could be drivers for social and economic development in their areas of influence, which are often inland; that they could improve competitiveness and favor international integration; and that they are compatible with care for the environment and contribute to sustainable and socially responsible development.

[1] The meeting was attended by representatives from Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela.

The Agua Negra Binational Tunnel: A Strategic Program

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The [First Workshop on the Implementation Plan for the Agua Negra Binational Tunnel Territorial Integration Program \(PTI\)](#) was held on August 24 and 25, 2016, in Santiago de Chile. The event was coordinated by [INTAL](#) in its role as the [COSIPLAN/IIRSA](#) Technical Coordination Committee, and it was attended by approximately 70 high-level officials from Argentina and Chile representing political and technical areas within their national, regional, and provincial governments.



The purpose of the event was to define the scope of the PTI Implementation Plan, establish how long each part would take and how much it would cost, and determine the parties responsible for implementing the 100 actions that were identified as forming part of it. It also aimed to establish a coordinated, articulated, and permanent mechanism between the two countries for following

up on the implementation of said actions from now until construction of the tunnel has been completed.

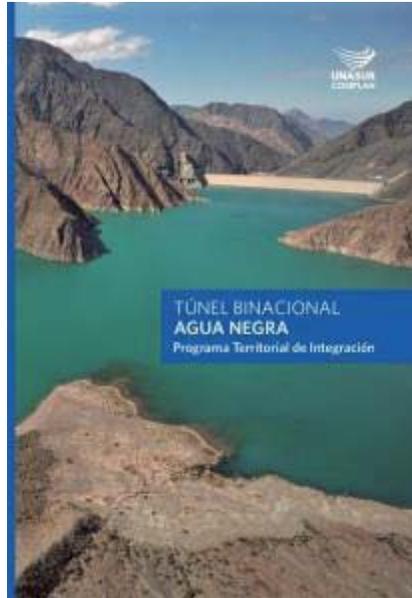
Those attending the workshop were divided into working groups which analyzed the actions that make up the plan, which were divided into five main areas: physical connectivity (including logistics platforms); electrical conductivity and ports; economic development; environmental sustainability; and climate change and risks. In addition, the highest authorities came together at a political/institutional working table where they defined the follow-up mechanism and agreed on how the work would move forward at both the binational level and between the national and subnational levels within each country.

The Value of Binational Initiatives

Argentina and Chile have been working on integration and facilitation at their border crossings for several years. This shared intention became a reality when the two countries decided to draw up a [Territorial Integration Program for the Agua Negra Binational Tunnel](#), using the guidelines developed by COSIPLAN/IIRSA. This work has been identified as a priority at the bilateral level in the Master Plan for Priority Border Crossings and at the regional level through its inclusion in UNASUR's Integration Priority Project Agenda (API).^[1]

The efforts made by both countries, especially on the part of the governments of San Juan and La Rioja provinces in Argentina and Coquimbo in Chile, demonstrate that it is possible to provide concrete answers for the local and regional population by developing infrastructure. The aim of such initiatives to improve inhabitants' quality of life and that of future generations by taking into account sustainable social and economic development criteria while caring for the environment and the balance of ecosystems.

This PTI is a set of plans, programs, and projects (PPPs) and associated actions and activities (AAs) that complement the tunnel itself and are of great importance to expanding the region's development potential. These PPPs aim to leverage the positive effects of constructing the tunnel and to mitigate or reduce obstacles that prevent people from fully taking advantage of these positive aspects.



<https://www.flipsnack.com/IIRSA/pti-tunel-binacional-agua-negra-argentina-chile.html> (link in Spanish)

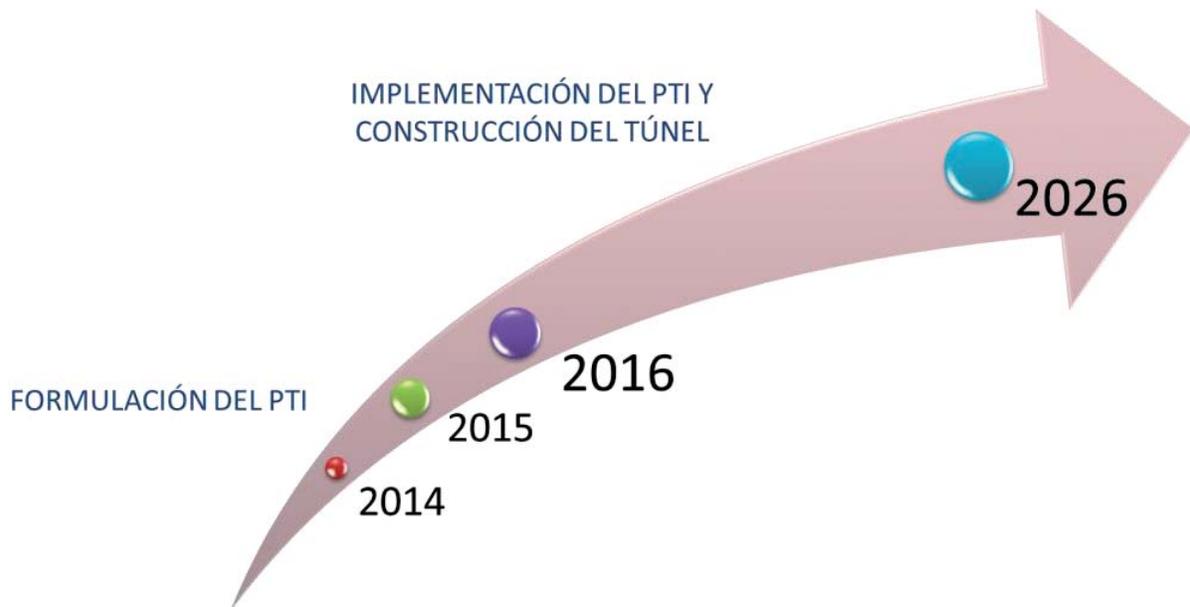
The tunnel is a large-scale project that poses technical, institutional, and financial challenges for Argentina and Chile. When work begins, it will be essential to achieve synergy between the construction of the tunnel itself and the implementation of the PTI (that is, planning the development of the area around the tunnel). This is why this is an ongoing project that will not finish when the tunnel is opened. Instead, it poses coordination-related challenges for the two countries, which must ensure the quality of life of inhabitants of the area.

This work was made possible through the involvement of officials from the two countries' national governments and the governments of the Argentine provinces of San Juan and La Rioja and the Chilean region of Coquimbo, who made up the Enlarged Work Team. The experience and knowledge of the territory that team members have acquired is a key outcome of this binational work process. These officials will be responsible for carrying out the Implementation Plan, which must be put into practice while the tunnel is under construction^[2].

The Commitment to Implementation

The Implementation Plan is a fundamental part of giving effect to the planning done during the drafting of the PTI (2014–2015). The plan is made up of a subset of PPPs and AAs which were selected by the two countries when work began in 2016.

Timeframe for the Drafting and Implementation of the PTI



The implementation of the PTI can be broken down into three core areas: (i) administration, monitoring, and follow-up; (ii) complete, up-to-date information; and (iii) commitment on the part of the Enlarged Work Team, including the clear identification those responsible for following up on actions and activities. The plan is made up of:

- **31 Intrinsic AAs:** these are new actions or activities that were identified as being relevant and complementary to the tunnel project during the process of drafting the PTI.
- **69 Concurrent Planning AAs:** these are actions or activities that are already part of government plans or programs and which were identified as being relevant or complementary to the tunnel during the process of drafting the PTI. Incorporating them into the program adds to their value.

The critical path toward implementation involves spearheading the Intrinsic AAs and following up on the Concurrent Planning AAs, focusing efforts on the more complex ones, which are Intrinsic Binational AAs.

At the event, the results of the work carried out by the Enlarged Work Team in gathering and systematizing information were presented. Of the total 100 priority AAs included in the Implementation Plan, information was available for 77% and only needed to be completed for 23%, which demonstrates how committed the Enlarged Work Team is to this initiative.

Information on Actions and Activities



The two-day event revolved around collaborative work in order for those present to reach consensus on the scope of the PPPs and the AAs that make up Implementation Plan 1.0; establish who is responsible for gathering information, managing, and following up on each of these AAs; and to discuss new initiatives presented by the countries for incorporation into the PTI.

As a result, it was agreed that each area would hold regular online meetings to follow up on the implementation of the AAs. This is a dynamic mechanism that involves all those who are responsible for Intrinsic Binational AAs, thus guaranteeing their implementation over the coming years.

Another point of consensus entailed analyzing alternatives for systematizing the information contained in the files and datasheets so as to facilitate the processes of monitoring and following up on AAs. It was also agreed that activities related to executing the Implementation Plan would be included as part of the COSIPLAN Work Plan 2017. The first progress report on

the Implementation Plan will be presented at the 7th Meeting of the COSIPLAN Ministers in December 2016.

[1] For further information, see the following articles in earlier issues of INTAL Connection: [No. 223](#) (March 2015), [No. 236](#) (April 2016), and [No. 240](#) (August 2016)

[2] The Enlarged Work Team Receives technical support from a team of consultants that is coordinated by IDB/INTAL in its role as the Secretariat of the COSIPLAN/IIRSATechnical Coordination Committee.

Inspiring Activities

Winners of the INTALENT Competition Take Part in MIT Innovators Under 35

- [Inspiring Activities](#)
- [n241](#)

This year's award ceremony for the Top Ten Innovators Under 35 competition in Argentina and Uruguay took place on Friday, September 23, 2016, at the Tecnópolis precinct in Buenos Aires. The winners were selected by the *MIT Technology Review en español* for their inspiring projects with the potential for social impact. The event was organized in partnership with various institutions, including INTAL, Argentina's Ministry of Science, Technology, and Productive Innovation, and the National Institute of Industrial Technology (INTI).

The competition has been run for over a decade throughout the world and which numbers Mark Zuckerberg of Facebook and Sergey Brin of Google among its winners. This year, the prize went to **Alejandro Esperanza**, the creator [Gurucargo](#), an online platform that enables importers and exporters to obtain quotes for shipping sea, land, and air freight quickly and easily. This reduces costs, democratizes access to international logistics, and benefits SMEs by cutting out middlemen.



The event also included presentations from the winners of [INTALENT](#), the competition that INTAL ran in the first half of 2016 in partnership with the *MIT Technology Review en español* and Argentina's Ministry of Culture.

INTALENT is a competition around innovation in the creative industries with an impact on integration and trade. It recognizes technologically based innovative talent within the Orange Economy in Latin America and the Caribbean. The competition seeks out initiatives whose intellectual property-based achievements have the potential to generate wealth and contribute to improving the lives of those living in Latin America and the Caribbean.

Over 680 projects from 20 countries in Latin America and the Caribbean took part in the competition. These were evaluated by juries with different areas of expertise from throughout

the region. The judges assessed innovation, the candidate's experience as an entrepreneur within his or her creative industry, the development and impact that the project is having on the region, its potential to stand out within the creative industry, and its contribution to increasing trade and regional integration, among other factors.

As he was introducing the winners, INTAL director **Gustavo Beliz** said, *"The creative sector drives income generation, creates jobs, and boosts exports while also fostering social inclusion, cultural diversity, and human development."* He went on to talk about the impact of the creative sector: *"It is the sector that has grown the most in Latin America and the Caribbean in recent years, creating 10 million jobs and exports worth US\$18 billion."*

The first prize for the INTALENT competition, US\$10,000 and a trip to Emtech, the emerging technology event organized by the *MIT Technology Review* in Boston, went to **Stereotheque**, a platform for exploring music on the basis of your location, preferences, and a touch of serendipity, and which functions on the basis of artificial intelligence.

The second prize, a trip to Demand Solutions, the IDB's start-up event in Washington, went to **Linguoo**, an audio app for news articles. The app's community functions like an intelligent, customized, and inclusive radio station where volunteers read articles from different newspapers, magazines, and blogs in different languages.



Discussions on the Future: Artificial Intelligence, Robotics, Smart Materials, and Nanotechnology

The conference included roundtable discussions where experts presented the latest advances in breakthrough technologies in different areas. **Robert Nicol**, director of the technology labs at the Broad Institute of MIT and Harvard, presented the human genome project that will enable “DNA sequences to be read and reprogrammed” in the near future.

Galo Soler Illia, dean of the Nanosystems Institute at the National University of San Martín, showed how nanomaterials are being used in everyday objects such as tennis rackets, cars, and television sets. **Joanna Berzowska**, head of electronic textiles at OMsignal, made waves with her descriptions of **clothing** that generates **energy** from the wearer’s movements.

Stella Loiacono, CTO of IBM Argentina, outlined the cognitive computation projects that the company is working on. Developments in artificial intelligence mean that robots can interact with users, come up with reasoned answers to certain questions, and improve their response times. According to Loiacono, these advances “are not seeking to replace humans as decision makers but to help them go about their day-to-day activities.”

Finally, **Diego Fernández Slezak**, professor of computing at the University of Buenos Aires’s School of Exact and Natural Sciences, spoke of how his department is working on a tool that gathers information on how people use the internet and that can predict certain psychiatric illnesses such as Parkinson’s, bipolar disorder, or formal thought disorder on the basis of the words they use to communicate.



The Winning Projects of the 2016 Ten Innovators Under 35 Competition in Argentina and Uruguay

- **Marcelo Wilkorswsky** received an honorable mention as a social innovator thanks to his [Oincs \(link in Spanish\)](#) platform, which uses collective intelligence to create a network of real-time traffic and crime alerts.
- **Danilo Cantero** is one of the creators of Fast Sugars, which is seeking to replace petroleum in the production of plastics and synthetics. To achieve this, he has designed a reactor to extract sugars from the cellulose in agricultural waste in milliseconds.
- **Francisco Colombatti**, director of development at the Biotech-Lab at Molinos Río de la Plata, has developed a microbiological treatment that inhibits the growth of the bacteria and

fungus that produce salmonella in soy flour. The treatment reduces the cost of this product by making it safer and more reliable.

- **Fernando Derossi** is one of the founders of Agrozone, a company that uses big data and image processing to increase agricultural productivity levels. The app provides producers with information that keeps them ahead of factors that could have a negative impact on their crops, such as pests or diseases, for example.
- **Solange Massa**, an Argentine doctor who is currently carrying out research at Harvard and MIT, has invented a chip that replicates human liver function to test the toxicity of new pharmaceuticals. This would replace testing on animals and in vitro cell cultures.
- **Diego Sáenz** is one of the creators of [Bluesmart](#), a smart online suitcase that improves your travel experience. The suitcase can be tracked by GPS at any time. It also has a digital lock that closes automatically when the owner moves away and a weight sensor that lets you know if your baggage is within airline weight limits. The company have sold over 25,000 units to date.
- **Lucas Toledo** is one of the inventors of [GiFlybike](#), a bicycle that folds up in a second with a single movement. Unlike other folding bikes, GiFlybike has large (26") wheels with solid, puncture-proof tires that don't need to be pumped up. And if riders get tired of peddling, the bike comes with an electric assist with a range of up to 60 km.
- **Lucía Spangenberg** is one of the founders of [Genlives](#), the company which provides genome studies that decode DNA into valuable information for diagnosing, treating, preventing, and evaluating complications in a range of illnesses. These studies include massive genome sequencing (whole genome, exome, specific gene panels).
- **Guido Vilariño** is one of the creators of Democracia OS, a web app that enables political parties, NGOs, and government offices to open a direct line of communication with citizens. The aim of the platform is to modernize politics and bring it into the digital era by improving the links between political representatives and those they represent.

Regional Workshop in Services Agreement (TiSA)

- [Inspiring Activities](#)
- [n241](#)

The opening ceremony was attended by high-ranking national and regional authorities: the Honorable Senator Maxine McClean, minister of foreign affairs of Barbados; Ambassador Gail Mathurin, director general of the OTN; Juan Carlos De La Hoz Vinas, the [IDB's representative in Barbados](#); and the host country's main media outlets.

This activity was part of the INTAL Training Program, which aims to expand member countries' technical capacities in matters of integration and trade. In this case, the focus was on the services and investments area.

The Regional Workshop was organized in response to a specific request that trade negotiators from [CARICOM](#) member states put to the [CARICOM Council for Trade and Economic Development \(COTED\)](#). They expressed the need to improve their technical knowledge on constructing liberalization offers for services and investments based on the negative list approach and that were also aligned with the main development goals of their countries and the region, a point that Ambassador Gail Mathurin underlined in her opening speech.

On the first day, the Regional Workshop provided a space in which to debate negotiations around the Trade in Services Agreement (TiSA) and the possible implications this may have for CARICOM countries. The TiSA is an international initiative which aims to promote the trade in services and it represents the largest global market in that sector. It is currently being negotiated by 23 countries, including Canada, Colombia, Costa Rica, Chile, Mexico, Peru, the European Union, and the United States. Some of the TiSA negotiating countries are of particular interest to CARICOM countries as they do not currently have preferential access to these markets for the immediate export of services.

The second and third days of the workshop analyzed the advisability of the Caribbean developing competences that would help the region identify its desired level of service and investment liberalization using new forms of negotiation, regardless of its preference for the negative list approach.

At the international level, there is a growing tendency toward the use of the negative list approach in both developed and developing countries, and it is the form favored by the region's key trade partners in their bilateral negotiations.

The organizers brought together a team of highly qualified experts to analyze and reflect on this issue: **Fernando Mayer de Leeuw**, Director of international trade in services and investment at [Mexico's Ministry of the Economy](#); **Felipe Sandoval Zamorano**, trade negotiator at Chile's [General Directorate of International Economic Relations \(DIRECON\)](#); **Chantal Ononaiwu**, trade policy and legal specialist at the OTN; **Marsha Drakes**, OTN program officer; **Joel Richards**, technical advisor at the OTN's Investment and Private Sector; and **Mario Umaña**, lead integration specialist at the IDB's Integration and Trade sector.

The audience was made up of government representatives from Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Surinam, and Trinidad and Tobago. Also present were government officials from the commission of the [Organisation of Eastern Caribbean States \(OECS\)](#), and officials from different OTN offices and the CARICOM Secretariat.

Integration in Motion

Chile Seeks to Boost Pacific Alliance Trade

- [Integration in Motion](#)
- [n241](#)
- [Regional Panorama](#)
- [Southern Cone](#)

During Chile's year as the [pro-tempore presidency of the PA \(link in Spanish\)](#), [the country announced that it would be focusing its efforts on increasing trade between PA member countries \(link in Spanish\)](#). So said the head of Chile's [General Directorate of International Economic Relations \(DIRECON\)](#), Andrés Rebolledo, at a briefing to present the scheduled activities and the progress that had been made by the bloc's main technical groups.

"One of our main objectives is to build up how the PA is perceived by the outside world, so as to deepen the bloc's trade ties with the MERCOSUR and other countries in Latin America," [Mr. Rebolledo said \(link in Spanish\)](#). There will also be a focus on supporting small and medium-sized enterprises (SMEs), and a [website](#) is being launched to provide information on the main features of regulations for SMEs in the four countries.

With regard to the regulatory framework, Chile is also working to harmonize regulations in the four countries on matters such as product labeling, customs proceedings, phytosanitary permits, and the mobility of people and services. The objective of this process is to unify and standardize certain policies.

With regard to trade, [Mr. Rebolledo drew attention to \(link in Spanish\)](#) the [Additional Protocol to the Pacific Alliance](#) that has been in force since May, which "establishes that raw materials and intermediate goods that are produced in any of the four Pacific Alliance countries are considered to be of national origin, thus favoring production chains and value chains in trade within the region."

Women Are Leading the Social Networking Revolution

- [Integration in Motion](#)
- [n241](#)
- [The SME Space](#)



Woman using her Mobile Phone, Night Light Background

“Women are very active on social networks and find them a very natural form of communication because they operate along similar lines to the way women communicate. Women are by definition very expressive and feel comfortable holding multiple conversations at the same time,” says **Gabriela Oliván**, an expert in corporate communications.

[The greater prevalence of women on social networks \(link in Spanish\)](#) could overturn stale stereotypes and demographic categories, generating a real impact in the media, advertising, and entertainment. Experts and studies analyzing [women’s dominant role online \(link in Spanish\)](#), particularly in social applications, take this point of view.

Women are far more active on social networks, use them more, and **are more participative than men**. They've adapted better to this new [technology](#), so they're the ones who are setting trends.

Ms. Oliván explains that while women are on social networking sites, for instance, they might be uploading a photo on Instagram while liking something on Facebook and sharing a story on LinkedIn. Men, in contrast, tend to have more linear involvement. "In general, they are more selective about the conversations they take part in and they tend to share content in similar formats," he added.

Soraya Fragueiro, a media strategist for ConnectAmericas, says that the more active involvement of women and teenagers is due in part to the emotional factor that is paramount in every action on social networks, even shopping. "This is why many brands and organizations have strategies to reach out to women directly using messages with emotionally moving photos, warm colors, direct but friendly language, and videos with music that is catchy but classy," she says.

Ms. Fragueiro argues that Pinterest and Instagram have become predominantly female sites whereas Facebook ranks third in this sense. Twitter and YouTube users, in contrast, are mostly male.

[Johanna Blakey](#), mass media and entertainment expert, claims that social networks signify the end of gender divisions and are going to help break down the debasing stereotypes that have long haunted traditional advertising and distorted the image of women.

Ms. Oliván concurs. "At present, women are the darlings of the social media market. They have the power to decide on, or at least influence, everything from cars, technology, tourism, beauty, medicine, household products, and children's goods. Brands are increasingly aware of them and are seeking to draw them in and earn their loyalty." In this sense, social networks are a powerful channel for reaching current and potential clients, creating a community, and getting these clients involved in spreading brands' messages.

Key points to bear in mind:

- An Intel study on Latin America revealed that 33% of women use Facebook to communicate with their friends and 8 out of 10 prefer to use social networks to stay in touch with others through instant messaging. Men are more inclined to use social networks to gather information, watch videos, and create content, and they prefer to give their opinions via Twitter.

- There are also notable gender-related differences in the content created by different brands on social platforms. While women follow brands to find out about news, special offers, and discounts, men only follow them because they like them or identify with them, but they don't truly engage with companies that they follow. Women, in contrast, give feedback and opinions on products and take part in competitions, among other things.

Rapprochements between the MERCOSUR and the European Union

- [Integration in Motion](#)
- [International Scenario](#)
- [n241](#)

At the [meeting of the heads of the 27 EU member states](#) that took place in mid-September in Bratislava, Slovenia, the topics discussed included the search for new economic horizons through agreements with the MERCOSUR.

At the event, 27 **EU** representatives agreed that the bloc needs to sign **trade agreements** with **Latin America** to increase trade in services and the industrial, agricultural, and commodity sectors.

This has reactivated the dialogue between the two blocs that first began many years ago. In May 2016, representatives from the **MERCOSUR** and the **EU** [met](#) in Brussels to negotiate access to their respective markets for **goods** and **services** and government procurement.

The two parties exchanged offers at the meeting, thus rekindling the long-running negotiations between them and acknowledging the major economic and political benefits that a formal agreement could mean for each region.

This process is covered in much greater detail in the INTAL publication *La Negociación MERCOSUR-Unión Europea a Veinte Años del Acuerdo Marco de Cooperación: ¿Quo Vadis?* [*MERCOSUR–European Union negotiations twenty years on from the framework cooperation agreement: Quo vadis?*] ([link in Spanish](#))

Chile and China Make Headway on Electronic Certificates of Origin

- [Integration in Motion](#)
- [n241](#)
- [Regional Panorama](#)
- [Southern Cone](#)

Government officials from the General Directorate of International Economic Relations (DIRECON) and Chile's National Customs Service took part in a [second working meeting \(link in Spanish\)](#) with their Chinese counterparts in Shanghai, with the aim of implementing a system for Electronic Certificates of Origin in the near future.

The group first met in April 2016 in Santiago de Chile. On that occasion, activities focused on preparing agreements around technical solutions to guarantee the security and feasibility of the data exchanges that will have to take place between parties. The purpose of this second meeting was to define certain technical issues, particularly those related to information technology.

The [Electronic Certificates of Origin initiative \(link in Spanish\)](#) is seeking to improve bilateral trade by streamlining the formalities of the export process. It is part of the [free trade agreement \(FTA\) \(link in Spanish\)](#) that has been in force between Chile and China since 2006.

In addition to facilitating trade, it is expected that electronic certificates of origin will help prevent fraud and the misuse of certificates of origin while speeding up the issuing process for these documents, thus making customs clearance a significantly more efficient process.

Miguel Ángel Arévalo, head of DIRECON's Certification and Verification of Origin Department, stated that "this process has been unfolding in an atmosphere of mutual understanding, and both parties have committed to continuing to move forward with developing an IT system." The next working meeting will be held in Chile on a date that has yet to be confirmed.

Argentine Biodiesel Benefits from a European Court Ruling

- [Integration in Motion](#)
- [n241](#)
- [Regional Panorama](#)
- [Southern Cone](#)

On September 15, 2016, a European Union court [ruled that antidumping tariffs \(link in Spanish\)](#) that [affect Argentine biodiesel exporters](#) would be canceled. As a consequence, Argentina biodiesel can return to the European market in coming months.

In November 2013, the European Union imposed tariffs of between 22% and 25.7% on Argentine producers for a period of five years. It also imposed a tariff of between 8.8% and 20.5% on biodiesel from Indonesia. Both Argentina and Indonesia complained at the World Trade Organization (WTO), which [ruled in favor of several of Argentina's claims](#).

On this occasion, the General Court of the European Union, the court of first instance for EU legal proceedings, said that the prices of unrefined raw materials were not regulated and that the European Union had not proved there to be a notable price distortion as a result of the differentiated export tax system.

The Director General of the [Argentine Chamber of Biofuels \(CARBIO\) \(link in Spanish\)](#), Víctor Castro, said that “overturning these tariffs would be a positive measure for Argentina as it would allow our biofuels to return to the European market, which they are currently being kept out of by tariffs, which can be as high as EUR250 per ton.”

“This ruling by the European Court supports our position, which is that we have never taken unfair measures when exporting to the EU, although that was the argument that the European Commission used, without any basis for doing so, to justify an illegal protectionist measure,” [added Luis Zubizarreta \(link in Spanish\)](#), the president of CARBIO.

On March 29, 2016, the WTO panel concluded that the antidumping measures enforced by the European Union ran contrary to binding multilateral trade standards. The panel's decision is an unprecedented victory for CARBIO and Argentina. The WTO is expected to make its final ruling in October 2016.

Argentina Makes Headway on the Single Window for Foreign Trade System

- [Integration in Motion](#)
- [n241](#)
- [Regional Panorama](#)
- [Southern Cone](#)

On August 12, 2016, as part of the [11th International Customs Law Conference \(link in Spanish\)](#) organized by the [Argentine Association of Fiscal Studies \(AAEF\) \(link in Spanish\)](#), the head of the Federal Association of Public Revenues, Alberto Abad, announced that [Argentina would implement a Single Window for Foreign Trade \(VUCE\) system \(link in Spanish\)](#).

This new mechanism will cut down on red tape affecting trade in goods and services as it allows official bodies such as the National Customs Administration, the Secretariat of Trade, the National Institute of Viticulture, and the National Food Safety and Quality Service to access an integrated information system.

[Mr. Abad added \(link in Spanish\)](#) that the system is currently being tested and that financing will be available to help upgrade technology within those organizations that “still do not have the in-house engineering departments necessary for the system to function in a coordinated fashion [...] The VUCE system consists of international guidelines for simplifying foreign trade operations [...] Each organization being able to access an IT application will reduce intervention times noticeably and make the trade process cheaper and smoother for operating companies,” he argued.

Mr. Abad drew attention to the work currently being carried out in order to implement the guidelines contained in the Trade Facilitation Agreement (TFA) that was reached in 2013 as part of multilateral negotiations at the World Trade Organization (WTO). Mr. Abad also mentioned digital certificates of origin (DCOs) and the [memorandum of understanding signed by Brazil and Argentina at the beginning of August](#).

“Global trade has increased by 10 percentage points in recent years. The production chain has basically been internationalized: there are no longer any goods that are produced in a single country from start to finish. In other words, borders are dead.” These types of systems, VUCE and DCOs, promote “agility, efficiency, and speed in cross-border commercial transactions through the use of new technologies,” Abad said.

According to the results of the [“Trade Facilitation and Paperless Trade Implementation Survey 2015 Global Report”](#) (UNESCAP), which was presented in October 2015 during the [7th Latin](#)

[American and Caribbean Regional Meeting on Single Windows for Foreign Trade](#), the main challenges facing VUCEs in the region include the lack of coordination between government organizations; the limited availability of skilled human resources; financial limitations; the absence of an entity leading or coordinating the process; the lack of political will; and technological limitations. This led to the conclusion that countries in Latin America and the Caribbean should be launching initiatives to move forward with trade facilitation because they need to build up intraregional trade, levels of which are currently low; foster productive chains within and outside the region; give SMEs incentives for going international; promote transparency and coordination among different state institutions; and to combat corruption more efficiently. This is what sparked interest in developing VUCEs, as is reflected in the number of such programs operating in the region, which went from 8 in 2011 to 16 in 2015.

Chinese Imports Increase after a Two-Year Slump

- [Integration in Motion](#)
- [International Scenario](#)
- [n241](#)

Chinese exports increased 1.5% in comparison with the same period in 2015, which brings an end to a 21-month downturn and suggests that internal demand is on the rise and that **commodity prices** are more stable.

Furthermore, **exports** [were down by \(link in Spanish\)](#) 2.8% in August 2016 in comparison with August 2015, according to the [China Customs Administration](#).

After a period of extraordinary growth, the **Chinese economy** has been expanding at a lower rate than in the last 30 years, which has been putting the brake on **global markets**. **China's** share in total **imports** went down for the first time since its spectacular integration into the world trade. The gradual changes to its **international integration** profile have been having a negative impact on the strength of its external demand. **Trade in manufactures** is at the core of this phenomenon, which could partly explain the reduced growth rates that global trade is currently experiencing, as was analyzed in [INTAL Connection 239](#).

If the **recovery** proves sustainable, it will help to address fears that the imbalance in the Chinese **economy** is growing ever greater, and will thus be a driver for global **growth**.

G20 Summit: Agreements to Reactivate Growth

- [Integration in Motion](#)
- [International Scenario](#)
- [n241](#)

On September 4 and 5, 2016, the G20 summit took place in Hangzhou, China. It was attended by the heads of states and ministers of the economy and finance of the member countries.

The main results of the summit include the joint announcement by Chinese president Xi Jinping and his US counterpart Barack Obama that the two countries would be ratifying the Paris Agreement on climate change, which may encourage other countries to follow suit and thus speed up the entry into force of the agreement.

The UN Secretary-General, Ban Ki-moon, who received the official ratification papers from the hands of President Obama and President Xi, stressed that this is a “historic step” in the fight against climate change.

As at the [last G20 summit](#), the refugee crisis was another major issue that those present agreed needs to be resolved in the short term.

They also acknowledged that global economic growth is still weaker than could be desired and cited the volatility of financial markets, fluctuations in commodity prices, the downturn in trade and investment, and low job growth in some countries as ongoing problems.

They also [announced](#) the decision to foster an innovative, interconnected, and inclusive economy to mark the start of a new era in global growth and sustainable development, taking into account the 2030 Agenda for sustainable development, the Addis Ababa Action Agenda, and the Paris Agreement.

At the end of the summit, the package of policies and initiatives to be known as the Hangzhou Consensus was presented. These center on vision, innovation, the end of war, care for the environment, and social inclusion, among other topics.

Investment in the Fight against Climate Change

- [Caribbean](#)
- [Integration in Motion](#)
- [n241](#)
- [Regional Panorama](#)

Officials from the **Caribbean Development Bank** (CDB) and the **French Development Agency** (AFD) [have signed](#) an agreement for US\$33 million. Approximately 50% of the funds will be used to finance **climate change adaptation and mitigation projects**. The agreement was signed in July 2016 at the CDB headquarters in Barbados by the French ambassador to the **Organisation of Eastern Caribbean States** and Barbados, Eric de la Moussaye, in the presence of CDB vice president Patricia McKenzie.

“**Caribbean** countries are particularly vulnerable to the impacts of **climate change**, with our geographical location leading to high exposure to natural hazards. **Economic** conditions also play a role, as there is a lack of access to long-term resources to finance sustainable climate-related **infrastructure projects**,” said Ms. McKenzie.

At the start of the year, heads of state from the region had stated that they were seeking sources of financing for urgent climate change related–projects, as was described in [INTAL Connection 233](#).

This new fund will be used by the CBD to increase **financing for infrastructure projects** in relation to **renewable energy, water and sanitation, waste management, adapting infrastructure** to the effects of **climate change**, and coastal and river protection.

The countries that are eligible to benefit from the mechanism are: **Antigua and Barbuda, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, and Surinam**.

Peru Promotes Border Integration

- [Central America and Mexico](#)
- [Integration in Motion](#)
- [n241](#)
- [Regional Panorama](#)

In early September 2016, Peru's minister of foreign affairs, Ricardo Luna, [announced \(link in Spanish\)](#) the mechanism for [handling border and national integration problems](#) to the Congressional Committee on Foreign Relations. This strategy has been used since 2007 in diplomatic relations between Peru and Ecuador.

The event [to be held \(link in Spanish\)](#) in October 2016 will be the 10th Peru–Ecuador Binational Cabinet meeting. The agenda will cover social issues, energy, infrastructure, security, and defense against organized crime.

At the third bilateral summit with Colombia, [which will take place in December](#), it is expected that the two parties will continue to focus on the populations living in the border area and to work on military and police cooperation.

A second meeting with Bolivia has been scheduled for November 2016, which the country's deputy foreign minister, Juan Carlos Alurralde, has announced will tackle “an agenda that includes all the topics that were not addressed at the first meeting.” Work has already begun on coordinating the construction of a shared port that will benefit foreign trade, as was outlined in [INTAL Connection 233](#).

Ecuador and Japan Sign Treaty on Natural Disasters

- [Andean Group](#)
- [Integration in Motion](#)
- [n241](#)
- [Regional Panorama](#)

On September 7, 2016, the [4th Meeting for Political Consultations between Ecuador and Japan \(link in Spanish\)](#) was held in Tokyo. Delegations from the two countries agreed to deepen political dialogue, promote economic and commercial relations, and consolidate cooperation and technical assistance.

Specifically, the two countries signed an agreement through which Japan will provide Ecuador US\$2 million in nonrefundable [financial assistance \(link in Spanish\)](#) for the purchase of high-tech equipment for the prevention and mitigation of natural disasters.

Those present also underlined the particular significance of the [hundredth anniversary of the establishment of diplomatic relations \(link in Spanish\)](#) between the two countries. It was agreed that a special programme would be developed to enhance this relationship, including visits to Quito and Tokyo from high-level authorities and high-profile individuals and the identification of mechanisms to increase and diversify trade.

After taking part in working sessions with the [Japan International Cooperation Agency \(JICA\)](#), the [Japan External Trade Organization \(JETRO\)](#), and the [Japan Business Federation \(Keidanren\)](#), the deputy minister of foreign affairs and political integration, Fernando Yépez, reaffirmed the Ecuadorian government's decision to strengthen political and diplomatic relations with Japan. He also encouraged Japanese companies to invest in Ecuador and take part in the development of the infrastructure projects currently being built in the country. He made a point of thanking Japan for the assistance it had provided to the victims of the earthquake that Ecuador suffered on April 16, 2016.

Progress on Electrical Integration with Mexico

- [Central America and Mexico](#)
- [Integration in Motion](#)
- [n241](#)
- [Regional Panorama](#)

Mexico's [SIEPAC \(link in Spanish\)](#) Interconnection Commission (CIEMS) [met \(link in Spanish\)](#) in mid-September 2016 at the country's Ministry of Foreign Relations to lay the foundations for its operations and make headway on analyzing proposals relating to infrastructure, regulatory harmonization, and the integration of the electricity markets of Mexico and Central America.

The meeting was attended by **Mexico's** minister of energy and other government officials from **Central America** as well as by high-level representatives and executives from the bodies that make up the **Central American regional electricity market**.

The creation of CIEMS was announced on May 4, 2016, at the **US–Caribbean–Central American Energy Summit**. Mexico's delegation was made up of ministerial and state authorities who will follow up on the commitments made regarding [electrical integration](#) at the Summits of Heads of States and Government of the Tuxtla Mechanism for Dialogue and Consensus.

The objectives of this meeting were to improve the reliability of the **electricity supply**, create competition, and attract new **foreign investment** to the region.

Mexico's representative stated that "this is a [priority project \(link in Spanish\)](#) for the **Mesoamerican Integration and Development Project** because connecting Mexico with the **Central American Electricity Market** will increase the region's energy security by guaranteeing a continual, low-cost supply of electricity."

Panama to Promote Sea Transportation

- [Central America and Mexico](#)
- [Integration in Motion](#)
- [n241](#)
- [Regional Panorama](#)

In the context of the Mesoamerica Project, the intention to promote short-distance sea transportation [was announced \(link in Spanish\)](#) during a briefing for government officials at the General Directorate of **International Economic Relations**. The meeting was attended by José Miguel Rovira, director of planning of the **Panamá Maritime Authority**, and José Dopeso, director of Maritime and Port Affairs at the **Central American Commission on Maritime Transportation** (COCATRAM).

To this end, meetings will take place between cargo owners and shipping companies in each country in November 2016 in order to combine criteria on this alternative to land-based transportation. As well as reducing transportation times and costs, the initiative aims to increase cargo volumes, improve the safety and efficiency of cargo handling, and improve trade with other regions of the world, as was announced at the [opening of the Panama Canal Expansion Project](#) in June 2016.

The briefing also underlined the importance of the geographical scope of the project, which includes **Belize, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, and Panama** and which has entailed evaluations of 49 public and private ports. Eleven of these are in Panama.

The maritime and port authorities of the countries of Mesoamerica will function as implementation units, Cocatram will provide technical support, and the [Inter-American Development Bank \(IDB\)](#) will be a source of **financing**.

Pacific Alliance Implements Venture Capital Fund

- [Integration in Motion](#)
- [n241](#)
- [Regional Panorama](#)

Next year, the **Pacific Alliance (Mexico, Colombia, Peru, and Chile)** will implement its [Venture Capital Fund for Small and Medium-Sized Enterprises \(SMEs\) \(link in Spanish\)](#), the Chilean government announced in mid-September.

Chile's director-general of **International Economic Relations** (Direcon), Andrés Rebolledo, [said \(link in Spanish\)](#) said that the fund would have up resources of up to US\$80 million for financing the activities of **SMEs** in the four PA countries.

In preparation for this initiative, at the end of June 2016, the bloc [created](#) and set in motion the [Regional Observatory for SMEs \(link in Spanish\)](#) in order to coordinate **trade regulations** and facilitate **intrazonal and international trade**. Before this, in October 2015, it had announced [plans](#) to create the **venture capital** fund.

According to the schedule for the mechanism, which will receive support from the [Multilateral Investment Fund \(MIF\)](#) and will be managed by the [Inter-American Development Bank \(IDB\)](#), it should be operating by 2017.

The fund will be managed by Angel Venture Mexico and currently includes contributions from the IDB/MIF for US\$5 million; Colombia for US\$10 million; and Mexico for US\$25 million.

The Chilean government has announced that during its pro-tempore presidency of the bloc, it will work towards implementing the 73 mandates adopted at the most recent Presidential Summit in Puerto Varas.

Reading Material on Integration

World Economic Forum Annual Report 2015–2016

- [n241](#)
- [Reading Material on Integration](#)
- [Reviews](#)

In the *Annual Report 2015–2016*, a group of experts from the World Economic Forum (WEF) identify two of today’s major challenges: “on the one hand, global leadership energies are being absorbed by crisis management. There is no focused effort to sustainably shape **global, regional, and industry futures** in a systemic manner. Global efforts are fragmented and siloed, despite the interconnected nature of our world. Numerous initiatives are undertaken in a compartmentalized way.” The report also recognizes that increased cooperation between multiple stakeholders is giving rise to a complex situation which will require organization and unity to connect efforts and provide leaders with a space where they can focus on the future and develop a “forward-looking strategic view in a world... that is absorbed by the challenges of the past.” The WEF is thus positioning itself as an “operating system” that will function as a platform from which these decisions can and must be made.

What areas do we need to improve to change direction?

The WEF has focused its activities on nine System Initiatives for fostering change, which include the digital economy and society; economic growth and social inclusion; education, gender, and work; environment and natural resource security; financial and monetary systems; food security and agriculture; health and healthcare; international trade and investment; and long-term investing, infrastructure, and development.

The shaping of regional agendas plays a fundamental role in this process. To this end, the authors review the state of affairs in the different continents. We focus here on their key points regarding the construction of the future **Regional Agenda for Latin America**.

The report recognizes that the region’s performance in the last decade has been promising, with years of continued, inclusive growth. However, the authors claim that Latin America has reached an inflection point. On the one hand, growth rates are slowing, and on the other, “the

region is entering a new phase of international trade and witnessing historic political milestones that could have a significant impact.”

The report believes that “region’s continued progress will depend on whether it can adapt its monetary and fiscal strategies to the realities of a postcommodity environment. This, along with measures to diversify its economies, update the skills of its labor forces, advance its **regional integration** and capitalize on the promises of the **Fourth Industrial Revolution**, can assist Latin America in increasing its productivity and ensuring its long-term growth.”

It also mentions the shaping of a **Global Industry Agenda** on the basis of the fourth industrial revolution and other factors that have converged, creating changes that are hard to predict. This includes the application of factors such as technology, big data, 3D printing, and the Internet of Things to commercial and social ecosystems.

World Economic Forum (WEF). 2016. [Annual Report 2015–2016](#). Geneva: WEF.

Trade liberalization and inequality: a dynamic model with firm and worker heterogeneity

- [n241](#)
- [Notable Publications](#)
- [Reading Material on Integration](#)

A vast literature demonstrates that trade liberalization is associated with higher wage inequality. Nearly the entire literature considers comparative statics or steady states, which ignore dynamics and of necessity feature monotonic changes. I address these limitations by developing a micro-founded model that emphasizes the dynamics of reallocation between heterogeneous firms and workers in the presence of costly labor adjustments. Trade liberalization provides firms both new export markets and new sources of competition. Expanding high-paying firms increase wages to recruit better workers faster. Workers at firms threatened by competition accept wage cuts to delay their employers' exit and keep their job. This provides novel implications for both aggregate and within-firm inequality across a distribution of firm types. I show that key mechanisms of the model are consistent with a range of facts using matched firm-worker data from France. Results from the calibrated model suggest an overshooting of inequality on the path to a new steady state. This is consistent with evidence based on an event study of recent liberalization episodes. Inequality appears to peak about six years after liberalization, with one-fourth of the overshooting disappearing in the following ten years.

[Download document](#)

The Sharing Economy in Latin America

- [Impact Assessment](#)
- [n241](#)
- [Reading Material on Integration](#)

The sharing economy is here to stay as a result of the profound economic and social changes that society and the global economy have been experiencing. According to estimates from Forbes for 2014, the sharing economy has grown around 25% globally, reaching a turnover of US\$3.5 billion.

In *Economía colaborativa en América Latina [The Sharing Economy in Latin America]* ([publication in Spanish](#)), six journalists who specialize in economics and technology at some of the main media companies in the region examined the sharing economy between August and November 2015 by getting in touch with some of the main sharing economy initiatives in Latin America. The study included a survey of 107 participants that aimed to evaluate the main features of enterprises that form part of the sharing economy. The results of this research were then used in the qualitative analysis undertaken by these experts subsequently.

Some of their key findings are as follows:

- Brazil, Mexico, Argentina, and Peru are at the forefront of these initiatives and have young business ecosystems that have existed for an average of five years.
- The sectors in which these initiatives operate mainly consist of companies that are seeking access to services and space, on the one hand, and individuals seeking more efficient forms of transportation and accommodation, on the other. Training and exchanges, job banks, and alternative currencies play a much smaller role.
- The main activities in the sector include: the rental of goods that were previously privately owned or provided by a more traditional industry; ideas markets (training, company marketing); and alternative ways of exchanging or selling goods.
- The sharing economy's potential for job creation: 64% of the initiatives have at least 10 employees.
- The limits to the growth of the sharing economy: there is a lack of knowledge and trust on the part of potential users/clients and a lack of investors and access to technology.
- What do the founders of these initiatives want? Support in spreading awareness of the type of business models they are offering.

Recommendations: Standardization, regulation, and financing.

“Regulation needs to be justified by the presence of market failures such as asymmetrical information or the existence of externalities; we need to regulate, but to do so intelligently.” With appropriate regulation and a form of supervision that have been adapted to the new digital platforms these models use, the sharing economy could become a stimulus for sectors of the traditional economy, driving competition, increasing supply, and promoting innovative alternatives for consumers.

Finally, the authors argue that not only does the sharing economy offer a new and promising learning framework for Latin America and the Caribbean, it also constitutes a space that could enable the region to form part of the Fourth Industrial Revolution.

The sharing economy promotes positive social values around exchange and collaboration through innovation and technology. It also has the potential to reduce the underlying negative externalities that are inherent to the traditional economy, such as in relation to transportation (environmental pollution), or underutilized goods, which imply an inefficient form of consumption.

The authors argue that by fostering an innovative, entrepreneurial spirit, some of the region’s major social, economic, and environmental problems could be solved. In this sense, they are optimistic about the future.

Economía colaborativa en América Latina [The Sharing Economy in Latin America] ([publication in Spanish](#)). 2016. Washington: MIF and IE Business School.

Trade Thermometer

Legal Instruments of Integration (LII) Observatory

- [n241](#)
- [Trade Thermometer](#)

Overview of regional trade negotiations and agreements. The LII is an analytically oriented compilation of regulatory texts, commentaries, and follow-up on legal commitments and developments concerning the various integration processes taking place in Latin America and the Caribbean. For news and to learn more about the progress made on trade agreements and negotiations, visit [LII](#).

This month's trends

In August and September 2016, the regional trade policy agenda was shaped by activities around trade negotiations both within and outside the region. The most notable example of this is Uruguay, which has been working towards deepening existing bilateral agreements while negotiating a next-generation bilateral trade agreement with Chile. There was also a marked contrast between the dynamism and strong leadership evident within the Pacific Alliance integration scheme and the deadlock that the MERCOSUR is currently experiencing.

360° Panorama

Over the course of the month, progress was made on 13 existing agreements and 10 trade negotiations.

Advanced Negotiations

- Trans-Pacific Partnership (TPP): [Congressional debates over the TPP heat up \(link in Spanish\)](#)
- El Salvador–Bolivia: [El Salvador and Bolivia make headway on a partial scope agreement \(link in Spanish\)](#)

- Central America–South Korea: [Central America holds fourth round of FTA talks with South Korea in Managua \(link in Spanish\)](#)
- Community of Latin American and Caribbean States (CELAC): [DR president takes part in meeting at UN to discuss the next CELAC presidency \(link in Spanish\)](#)
- Chile–Uruguay: [Uruguay seeks to replicate the negotiating model for its free trade agreement with Chile in talks with other countries \(link in Spanish\)](#)
- Ecuador–El Salvador: [El Salvador–Ecuador FTA Negotiations Finalized](#)
- Ecuador–European Union: [EU waives tariff on foreign tuna fish processed in Ecuador \(link in Spanish\)](#)
- MERCOSUR–European Union: [The MERCOSUR and the EU to resume negotiations in October \(link in Spanish\)](#)
- Panama–Israel: [Panama and Israel discuss the potential for strengthening trade relations \(link in Spanish\)](#)
- Peru–Turkey: [Peru and Turkey negotiate a paragraph on defense in their free trade agreement \(link in Spanish\)](#)

Selected news on trade agreements currently in force

- Pacific Alliance: [The Pacific Alliance has almost 50 free trade agreements currently in force \(link in Spanish\)](#)
- Latin American Integration Association (ALADI): [Argentina and Brazil to use the ALADI digital certificate of origin in bilateral trade \(link in Spanish\)](#)
- Chile–Central America: [Chile is exploring economic opportunities in Costa Rica and Nicaragua \(link in Spanish\)](#)
- Chile–India: [Chile and India expand Partial Scope Agreement \(AAP\) on trade \(link in Spanish\)](#)
- Colombia–Venezuela: [Colombia and Venezuela agree on a special identity cards to reopen the border \(in Spanish\)](#)
- Caribbean Community (CARICOM): [Reform Process in CARICOM](#)
- United States of America–Colombia: [Colombia’s FTA with the United States shows a negative balance \(link in Spanish\)](#)
- Southern Common Market (MERCOSUR): [MERCOSUR puts forward a solution to its presidency problem \(link in Spanish\)](#), [Paraguay asks for protocols of accession to be reviewed \(link in Spanish\)](#)

- MERCOSUR–Bolivia [Venezuela adds a MERCOSUR common external tariff \(link in Spanish\)](#), [Paraguay signs Bolivia’s protocol of accession to the MERCOSUR \(link in Spanish\)](#)
- Mexico–European Free Trade Association (EFTA): [Mexico to host second business round to update the Mexico–European Free Trade Association agreement \(link in Spanish\)](#)
- Mexico–Uruguay: [Uruguay begins negotiations to expand trade agreements with Mexico \(link in Spanish\)](#)
- Panama–Chile: [Chile and Panama seek to strengthen the implementation of their free trade agreement \(link in Spanish\)](#)
- Peru–People’s Republic of China: [A future shared with China \(link in Spanish\)](#)
- Dominican Republic, Central America–United States of America (CAFTA–DR): [DR creates committee to evaluate the impact of CAFTA–DR on agricultural products \(link in Spanish\)](#).

Print It Yourself

- [n241](#)
- [Trade Thermometer](#)



Digital manufacturing technologies, especially 3D printing, allow objects to be digitized in three dimensions and then printed out as objects, using a range of materials. This shortens the time lag between design and production and helps speed up the manufacturing of small batches of products. Digital manufacturing thus emphasizes the role of the service economy and the growing importance of design and programming capacities while posing a threat to traditional forms of manufacturing. Does digital manufacturing have the potential to revolutionize production methods and trade the way the steam engine, the internal combustion engine, and electronics did in the past, and the way that information technologies are doing today? What type of policies will be needed if digital manufacturing is to reach its full potential? What are the challenges facing countries in Latin America and the Caribbean?

[Read more](#)

Editorial

Editorial Staff

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